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In Memoriam

Halina KRZANOWSKA (1926 – 2004)

On the 3rd of June 2005 the Committee of Embryology and Morphology at the Polish Academy of Arts and Sciences, Department of Genetics and Evolution Jagiellonian University and Polish Academy of Sciences held a memorial session devoted to the scientific activities of Professor Halina KRZANOWSKA one of the most distinguished Polish geneticists.

She was born in Żabie, spent her childhood in Vilnius, in 1936 she moved to Kraków where she completed her secondary education in the clandestine sessions of the 10th Secondary School of Queen Wanda in Kraków. Since the autumn of 1944 till the liberation of Kraków, Halina Krzanowska worked as a technician in Professor BUJWID's laboratory producing vaccines. She graduated from biology at the Faculty of Mathematics and Natural Sciences at the Jagiellonian University, later earning a Ph.D. (1949). Her professional career started in 1948 in the Department of Comparative Anatomy led by Professor Zygmunt GRODZIŃSKI. In 1952 she moved to the Department of Experimental Biology of the Institute of Animal Reproduction in Puławy, working as research associate under the supervision of Professor Laura KAUFMAN, and later as director of this department. During 1957 she stayed at a well-known Poultry Research Centre in Edinburgh, Scotland, as a fellow of the Rockefeller Foundation. Between 1960-1962 she performed her habilitation studies in the Faculty of Biology and Earth Sciences at the Jagiellonian University in the area of animal genetics. In 1964 she returned from Puławy to Kraków as chair of the Department of Genetics and Evolution. Professor KRZANOWSKA managed the Department for the next thirty-two years. After retirement in 1996 she continued her professional activities and maintained close contact with the Department and the scientific community.

In 1971 she became an associate professor, in 1978 a full professor. She served as dean in the Faculty of Biology and Earth Sciences of the Jagiellonian University for two terms (1981-1987).

Several honours testify to Professor KRZANOWSKA's acknowledged scientific career. She was a full member of the Polish Academy of Sciences and full member of the Polish Academy of Arts and Sciences, and also a member of national and international scientific societies, e.g. Academia Europaea, Society for the Study of Fertility, Polish Genetics Society, Society for Reproductive Biology.

Professor KRZANOWSKA was received several prestigious awards. Broad knowledge, respectable scientific achievement and great authority entrusted her with many important positions. She was a member

of numerous committees and scientific councils. For almost twenty years Professor KRZANOWSKA was Chairwoman of Scientific Council in Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków.

Professor KRZANOWSKA was editor of *Zwierzęta Laboratoryjne* (1972-1987), on the board of editors for *Folia Biologica* (Kraków), *Journal of Applied Genetics* (formerly *Genetica Polonica*) and *Wszechświat*, in which she served for many years as deputy editor.

Besides earlier work carried out on poultry, mainly in Puławy, Professor KRZANOWSKA's scientific career involved laboratory mice. It focused mainly on the analysis of genetic factors governing fertility. These analyses have shown that the percentage of abnormal spermatozoa in inbred laboratory mice is polygenically determined, with the gene or genes located on the Y chromosome playing an important role. This was the first publication on the role of the Y chromosome in determining the quality of sperm in mammals, and therefore the quality of spermatogenesis. These results, which were presented by Professor KRZANOWSKA in Edinburgh in 1971, were later fully confirmed on other research models both in our laboratory and in other research centers. Today the impact of various regions of the Y chromosome on spermatogenesis, including human spermatogenesis, is widely known. It is recognized that deletions on the long arm of the human Y chromosome are the cause of 1/5 of all cases of male infertility. This theme was developed in a few laboratory research programmes which looked into the quality of sperm. The results showed a much lower quality of gametes in males with a deletion on the Y chromosome in comparison with males from the control strain. Consequently, it was proven that the males from the strain with a deletion on the long arm of the Y chromosome have a number of fertility disorders, apart from the high percentage of abnormal spermatozoa, they have a higher percentage of degenerated seminiferous tubules in the testis and late maturation of spermatozoa. A lower efficiency of *in vivo* fertilization is caused by the impaired ability of the spermatozoa to reach the place of fertilization.

Another significant accomplishment in Professor KRZANOWSKA's career was showing that the quality of gametes in mammals is determined autonomically by the expression of their own genes, while the environment inside the gonad can induce only slight modifications.

In recent years Professor KRZANOWSKA focused on the genetic analysis of inbred recombinant strains. These studies have shown the correlation between morphology of sperm heads and the frequency of abnormalities.

Professor KRZANOWSKA's publication record lists 170 positions, 73 of which are original research papers.

Halina KRZANOWSKA was an exemplary academic lecturer and also a very talented science writer and endorser to the general public, as demonstrated by the many books and textbooks she has authored. Additionally, she co-authored or edited many academic textbooks. The most important include: *Embriologia* (PWN 1970), *Wprowadzenie do Genetyki Populacji* (PWN 1982), *Leksykon Biologiczny* (Wiedza Powszechna 1992), *Genetyka Molekularna* (PWN 1995), *Molekularne Mechanizmy Rozwoju Zarodkowego* (PWN 2002). Many of them were awarded.

The popularization of science was very important for her and she was a well known ambassador of science to the general public. All the articles that Professor KRZANOWSKA wrote concerned contemporary, broadly disputed topics in science. Her style of writing was always clear and easy to comprehend which made even the most complex of subjects available for any reader.

Apart from her passion for science Professor Halina KRZANOWSKA always found the time to follow the latest developments in culture. She was extremely well-read and loved the theatre. She was fond of nature and went on walking trips exploring the countryside; she always found the time to go swimming and skiing.

Professor KRZANOWSKA was a wonderful person. Although she had retired, she was always eager to offer assistance and advice in our work. Her scientific intuition was amazing. She also taught us how to enjoy success, not only our own but also that of others. Her kind-heartedness and optimism created an atmosphere in which research thrived.

Józefa Styrna